

outwardly direction relative to the housing 260. Preferably, first contact point 241 is positioned in entrance 234, proximate to top 227. A second contact point 243 is positioned closer to the bottom 229 (FIG. 2), relative to z1. The second contact point 243 supports spine 105 towards an inward direction relative to housing 260. The second contact point 243 may be offset from the first contact point relative to lateral side 221. A third contact point 245 supports spine 105 further along first device slot 212. The third contact point 245 also supports spine 105 inwardly relative to housing 260. A contact region 247 confines an inserted portion of spine 105, limiting the spine's flexibility at that stage.

In an embodiment, the distance between the first contact point 241 and the second contact point 243 is between 14–22 mm, and preferably about 18–19 mm. The distance between the second contact point 243 and the third contact point is between 6–12 mm, and preferably about 9 mm. In addition, the first contact point 241 is on or near lateral surface 221. The third contact point 245 is between 1–4 mm a depth into the housing, and preferably a depth of 2 mm from the first contact point 241. The interior of first device slot 212 is defined by a thickness of the casing 260. Preferably, the thickness of casing 260 increases as from the second contact point 243 to the third contact point 245. This forms an L-shaped cross-section within first device slot 212. This cross-section provides sufficient range of motion for spine 105, with contact points 241, 243, and 245 positioned to support the spine 105 from yielding.

The deformable layer 118 deforms in regions that are supported by first contact point 241, second contact point 243, and third contact point 245. The contact region 247 may also deform the deformable layer 118. As a result, the interior structure of first device slot 212 supports spine 105 from yielding, while frictionally retaining spine 105 within first device slot 212.

FIG. 13 is a top view of handheld computer 220 with spine 105 inserted in device slot 212, under an embodiment of the invention. A configuration of a device slot 212 and another insertable member is shown in phantom to provide a relative comparison of an advantage of the embodiment described. In particular, the configuration of first device slot 212 and spine 105 allow for accessory device 100 to cover a smaller-footprint on housing 260, relative to devices using insertable members with circular cross-sections.

In an embodiment, device slot 212 is C-shaped, including exposed length 262 that extends vertically (into the paper) along the lateral side 221. As such, device slot 212 is configured to receive spine 105, having a rectangular cross-section. The first device slot 212 may include exposed length 262, which enables for a body to extend from spine 105, such as described with FIGS. 1 and 2. This enables device slot 212 is to receive a T-shaped cross-sectional member, formed by a combination of spine 105 and an extended body (i.e. cover portion 120). Among other advantages, the rectangular cross-section of spine 105 provides a greater resistive force against separating from the device through exposed length 262, when compared to insertable members of known devices having circular cross-sections.

In an embodiment, the exposed length 262 allows for flex portion 110 to act as a hinge. The flex portion 110 enables cover portion 120 to flip between the front face 222 and back face 242 of handheld computer 220. The flex portion 110 may be formed from a tensile material such as leather, plastic, vinyl or rubber. The tensile properties of the flex portion enables, for example, cover portion 120 to flip between the front face 222 and the back face 242.

F. Examples and Alternative Embodiments

In an embodiment, core 114 of spine 105 is formed from steel. The thickness of core 114 is sufficient to enable spine 105 to flex lengthwise. The core 114 is clad with leather. The leather is stitched to flex portion 110. Preferably, flex portion 110 and cover portion 120 are also leather, and stitched, glued or other wise attached to one another.

While embodiments described thus far have referred to the accessory device as being an apparatus for providing a cover on the handheld computer 220, other embodiments may include components, circuits, and gadgets to extend functionality. For example, cover portion 120 may be equipped with folders and pockets, such as to provide for business cards and pens. The cover portion 120 may also include electronic components, such as global positioning components, radio-frequency antennas, and other circuitry. Examples of such accessory devices are disclosed in U.S. patent application Ser. No. 09/1573,451, entitled "Electronic Encasement for a Handheld Computer", filed May 16, 2000, naming Lunsford et al. as inventors; U.S. patent application Ser. No. 09/586,541, entitled "Smart Cover for a Handheld Computer", filed May 31, 2000, naming Canova, Jr. et al. as inventors; U.S. patent application Ser. No. 09/451,630, entitled "Cover for a Handheld Computer", filed Nov. 30, 1999, naming Han et al. as inventors; U.S. patent application Ser. No. 09/502,169, entitled "Encasement for Handheld Computer", filed Feb. 11, 2000, naming Canova, Jr. et al. as inventors; U.S. patent application Ser. No. 09/572,673, entitled "Keyboard for a Handheld Computer", filed May 16, 2000, naming Lunsford et al. as inventors; all of which are hereby incorporated by reference.

Another embodiment of the invention includes a stylus housed with the handheld computer. The stylus may be equipped with features of spine 105, in a manner described with embodiments of the invention. In a specific embodiment, a stylus includes an elongated member having a length and a cross-section. The cross-section permits the stylus to engage the device slot. The length enables the stylus to be received and retained within the slot. A majority of the length of the elongated member may include a deformable layer. As used herein, majority refers to an amount greater than 50% of the whole. The deformable layer deforms when the stylus engages the slot to retain the stylus within the slot.

In another embodiment, cover portion 120 extends from spine 105 without a flex member 110. The cover portion 120 may be moveable within device slot 212 to enable cover portion 120 to move between the front face 222 and the back face 224 of handheld computer 100.

In still another embodiment, spine 105 may comprise the accessory device, or alternatively form a detachable connection for other components. For example, the spine 105 may have a connection to couple to different types of other devices in a modular fashion.

G. Conclusion

The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to limit the invention to the precise forms disclosed. Many modifications and equivalent arrangements will be apparent.

What is claimed is:

1. A handheld computer comprising:

- a housing having a front face and a back face, a top surface and a bottom surface defining a first axis, and a first side and a second lateral side defining a second axis;
- a display accessible on the front face of the housing;
- an antenna element retained on or within the housing, the antenna element being positioned relative to the first axis to be between the display and the top surface; and